



# Lower Colorado River Multi-Species Conservation Program

*Balancing Resource Use and Conservation*

## Imperial Ponds Conservation Area

## 2014 Annual Report



**June 2018**

Work conducted under LCR MSCP Work Task E14

# Lower Colorado River Multi-Species Conservation Program Steering Committee Members

## **Federal Participant Group**

Bureau of Reclamation  
U.S. Fish and Wildlife Service  
National Park Service  
Bureau of Land Management  
Bureau of Indian Affairs  
Western Area Power Administration

## **Arizona Participant Group**

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Arizona Electric Power Cooperative, Inc.  
Arizona Game and Fish Department  
Arizona Power Authority  
Central Arizona Water Conservation District  
Cibola Valley Irrigation and Drainage District  
City of Bullhead City  
City of Lake Havasu City  
City of Mesa  
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City of Yuma  
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Mohave Water Conservation District  
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Wellton-Mohawk Irrigation and Drainage District  
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Yuma Irrigation District  
Yuma Mesa Irrigation and Drainage District

## **Other Interested Parties Participant Group**

QuadState Local Governments Authority  
Desert Wildlife Unlimited

## **California Participant Group**

California Department of Fish and Wildlife  
City of Needles  
Coachella Valley Water District  
Colorado River Board of California  
Bard Water District  
Imperial Irrigation District  
Los Angeles Department of Water and Power  
Palo Verde Irrigation District  
San Diego County Water Authority  
Southern California Edison Company  
Southern California Public Power Authority  
The Metropolitan Water District of Southern California

## **Nevada Participant Group**

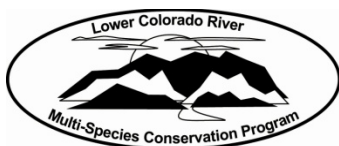
Colorado River Commission of Nevada  
Nevada Department of Wildlife  
Southern Nevada Water Authority  
Colorado River Commission Power Users  
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## **Native American Participant Group**

Hualapai Tribe  
Colorado River Indian Tribes  
Chemehuevi Indian Tribe

## **Conservation Participant Group**

Ducks Unlimited  
Lower Colorado River RC&D Area, Inc.  
The Nature Conservancy



# **Lower Colorado River Multi-Species Conservation Program**

## **Imperial Ponds Conservation Area**

### **2014 Annual Report**

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# ACRONYMS AND ABBREVIATIONS

DO	dissolved oxygen
Imperial NWR	Imperial National Wildlife Refuge
IPCA	Imperial Ponds Conservation Area
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
mg/L	milligrams per liter
mm	millimeter(s)
pH	the acidity or basicity (alkalinity) of an aqueous solution
PIT	passive integrated transponder
Reclamation	Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service

## Symbols

°C	degrees Celsius
>	greater than
≥	greater than or equal to
<	less than
μS/cm	microsiemens per centimeter
%	percent

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# 1.0 INTRODUCTION

The purpose of this annual report is to summarize all activities that have occurred at the Imperial Ponds Conservation Area (IPCA) from October 1, 2012, through September 30, 2013, which is Federal fiscal year 2013. Water usage is presented for the calendar year, January 1 through December 31, 2013, consistent with water accounting reporting.

## 1.1 Background

The IPCA consists of 126 acres of land located on the U.S. Fish and Wildlife Service's (USFWS) Imperial National Wildlife Refuge (Imperial NWR). In 2000, the USFWS, the Bureau of Reclamation (Reclamation), and Ducks Unlimited began constructing the DU2 Ponds as part of the 1997 Biological Opinion. The site consisted of 96 acres that included four backwater ponds and native riparian forest. Problems developed with both the backwater and riparian habitat. The backwater ponds were shallow and could not be isolated from one another without compromising water quality. One backwater pond successfully maintained native fishes; however, fishes could not be maintained in the remaining three backwater ponds. The riparian plantings of Fremont cottonwood-willow (*Populus fremontii-Salix* spp.) (hereafter cottonwood-willow) were unsuccessful as a result of high soil salinities.

Reclamation partnered with the USFWS to fulfill a portion of the Lower Colorado River Multi-Species Conservation Program's (LCR MSCP) habitat creation/restoration goals. A Land Use Agreement has been entered into between Reclamation and the USFWS that identifies 126 acres of program lands that comprise the IPCA and secures water on the refuge.

# 2.0 CONSERVATION AREA INFORMATION

## 2.1 Purpose

The IPCA was developed for both native fishes and terrestrial wildlife species. Currently, the IPCA consists of six disconnected backwaters totaling 80 acres created as backwater habitat for bonytail (*Gila elegans*) and razorback suckers (*Xyrauchen texanus*). There are 12 acres of managed marsh for California black rails (*Laterallus jamaicensis coturniculus*), Yuma clapper rails (*Rallus longirostris yumanensis* [also known as Yuma Ridgway's rail = *R. obsoletus yumanensis*]), and western least bitterns (*Ixobrychus exilis hesperis*). Thirty-four acres will be developed as riparian habitat for southwestern willow flycatchers



(*Empidonax traillii extimus*), yellow-billed cuckoos (*Coccyzus americanus occidentalis*), and other LCR MSCP species as identified in the LCR MSCP Habitat Conservation Plan (LCR MSCP 2004).

## **2.2 Location**

The IPCA is located within Reach 5 of the LCR MSCP program area. It consists of 126 acres of land on the Imperial NWR located in Arizona at River Mile 59 (figure 1).

## **2.3 Landownership**

The property is located on the Imperial NWR, which is owned and managed by the USFWS.

## **2.4 Water**

The IPCA receives water from the Imperial NWR's entitlement granted by the 1964 Supreme Court Decree in *Arizona v. California* and by U.S. Department of the Interior Secretarial reservation. The Imperial NWR has an entitlement of 28,000 acre-feet of water diverted from the main stream, or 23,000 acre-feet of consumptive use of main stream water, whichever is less, with a priority date of February 14, 1941. The water used for the ponds and irrigation is supplied from a portion of this water.

## **2.5 Agreements**

A Land Use Agreement was signed in 2006 by Reclamation and the USFWS to secure land and water for the IPCA for the remainder of the 50-year LCR MSCP. The agreement outlines the rights and responsibilities of each partner in the project's development and maintenance.

## **2.6 Public Use**

The IPCA is in an area that was closed to the public by the USFWS prior to becoming a conservation area; it remains closed to the public.

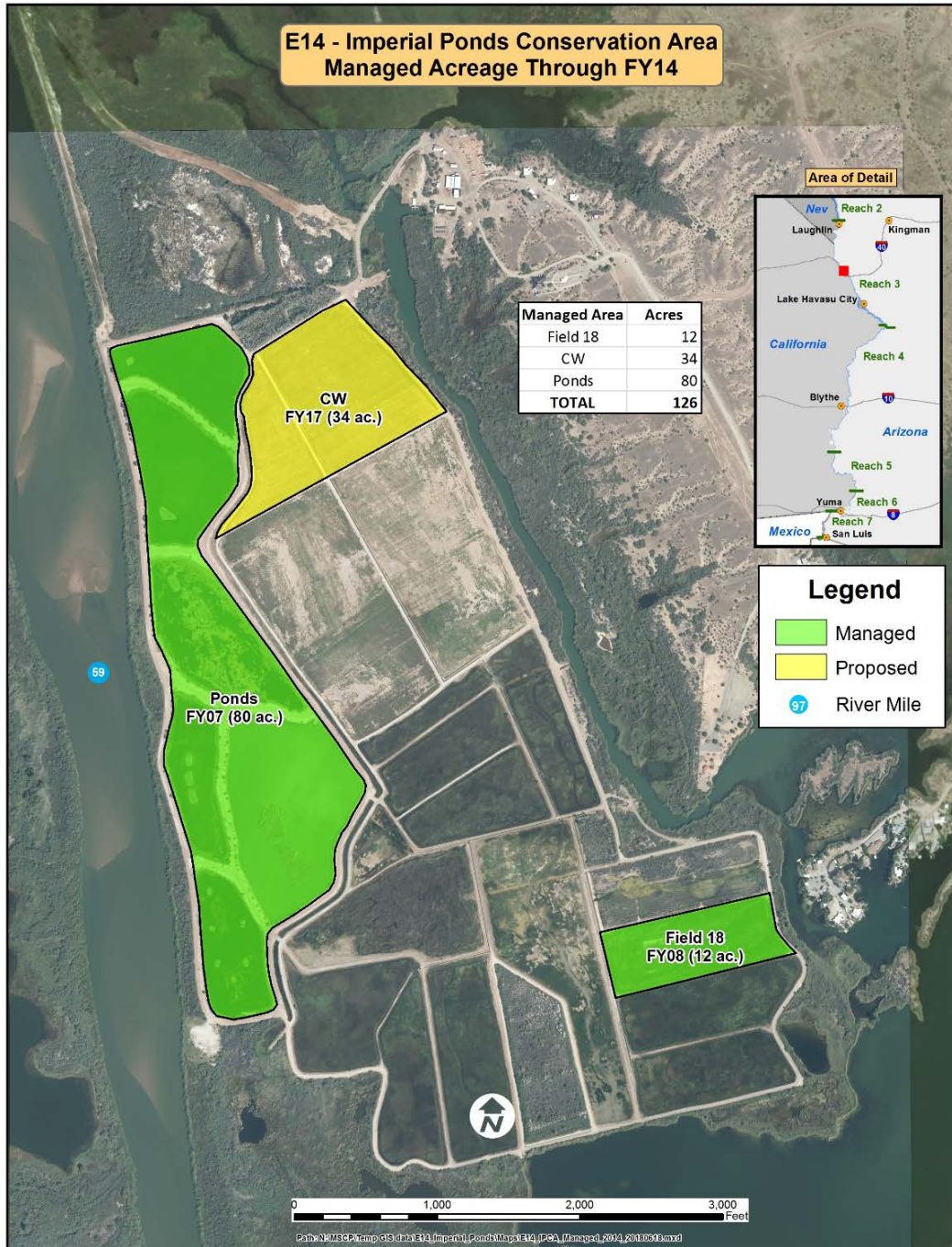


Figure 1.—Map of the IPCA.

## **2.7 Law Enforcement**

Law enforcement activities are performed primarily by the USFWS's Law Enforcement Officer, under the LCR MSCP's site-specific Fire Management & Law Enforcement Strategy (LCR MSCP 2010). Additional local law enforcement assistance is available through the Arizona Game and Fish Department's Yuma Office, the Yuma County Sheriff's Office, and the Bureau of Land Management's Yuma Office.

## **2.8 Wildfire Management**

The USFWS will provide an appropriate management response to all wildfires that occur within the IPCA. The full range of suppression strategies is available to managers provided that selected options do not compromise firefighter/public safety or cost effectiveness while protecting wildlife habitat (LCR MSCP 2010).

## **3.0 HABITAT DEVELOPMENT AND MANAGEMENT**

### **3.1 Planting**

No planting occurred at the IPCA during 2014. Future development of 34 acres of a cottonwood-willow field is planned for fiscal year 2017.

### **3.2 Irrigation**

Water is supplied by two separate pumping systems. A 75-horsepower pump provides water to irrigate the majority of the intensive management area to include LCR MSCP Fields 1, 2, 3a, and 18. A 200-horsepower groundwater well pump was used to provide water to the Imperial ponds.

Riparian Fields 1 and 2 received 54.2 and 28.4 acre-feet of water, respectively (table 1). Water was applied from mid-February through September 2014 in a continued effort to reduce soil salinity. Field 18 is irrigated to maintain a staff gauge reading of 1 foot. During the same time period as Fields 1 and 2, water was added to Pond 1 in accordance with the schedule prepared by Reclamation through September 2014. Water was added to all six ponds during November and December 2014 to bring their water elevation to 185 feet.

Table 1.—IPCA irrigation/water usage summary

Location	Water usage from January 1 through December 31, 2014 (acre-feet)
Pond 1	54.6
Pond 2	28.5
Pond 3	36.9
Pond 4	13.2
Pond 5	13.2
Pond 6	25.7
Field 1	54.2
Field 2	28.4
Field 18	711.9

### 3.3 Site Maintenance

Phragmites (*Phragmites australis*) was managed onsite with herbicide and mowing. An American Conservation Experience crew cleared mesquite (*Prosopis* sp.) and tamarisk (*Tamarix* sp.) from Fields 1 and 2. Water was shut off to the canals in October 2013 so the refuge could clean them and make any repairs necessary. The water was turned back on in February 2014.

A second groundwater well was installed onsite to supply water to the ponds. The new well both increased the volume of water that could be delivered to the ponds and provided redundancy in the event of the first well becoming inoperable.

### 3.4 Management of Created Land Cover and Habitat

#### 3.4.1 Pond Management

The ponds now have a water delivery system that is 100% well-water supplied and is assumed to be completely free of all life stages of non-native fishes, thereby eliminating a key vector for invasion and establishment of non-native species. A plan was completed that addresses pre-stocking protocols, including details on site preparation and accepted protocols for treatments and intensive post-renovation monitoring.

In preparation for the renovation efforts, the removal of all bonytail and razorback suckers from Pond 1 was initiated. Removal efforts were conducted during February through March 2014 to avoid water temperatures of  $\geq 20$  degrees Celsius ( $^{\circ}\text{C}$ ).

### **3.4.2 Soil Management**

Riparian Fields 1 and 2 continue to be irrigated to reduce soil salinity until planting.

## **4.0 MONITORING**

Many of the monitoring activities are part of a larger monitoring project of the LCR MSCP. Additional details and information may be available in the project's technical reports, which are available upon request.

### **4.1 Backwater Monitoring**

#### **4.1.1 Native Fishes**

Native fish removal efforts from Pond 1 were conducted during February through March 2014 to avoid water temperatures of  $\geq 20$   $^{\circ}\text{C}$ . A combination of hoop, trammel, and Oneida nets were deployed for 166,220 minutes of sampling. Thirty-three bonytail (mean 173 millimeters [mm], 105–270 mm) were captured. Three were given to the Imperial NWR for their display tank. The remaining 30 were transported to the Lake Mead Fish Hatchery. None of the bonytail were recaptures. Twenty-six razorback suckers (mean 543 mm, 410–630 mm) were captured and transported to the A10 backwater. Seventeen were recaptured fish, and nine were not tagged.

Passive integrated transponder (PIT) tag units were deployed from May through September to evaluate how many native fishes remained in Pond 1. No population estimate could be generated for bonytail because of limited recapture data (less than three bonytail captured); however, three bonytail with PIT tags were detected regularly by the scanners.

A population estimate of 77 individuals (95% confidence interval of 55–115) was generated for razorback suckers.

### 4.1.2 Water Quality

Physico-chemical water quality parameters, including temperature, dissolved oxygen (DO), specific conductivity, and pH, all have the potential to affect the survival of native fishes as well as their ability to complete their life cycle. Water quality in the Imperial ponds was monitored using multi-parameter water quality instruments that recorded temperature in degrees Celsius, DO in milligrams per liter (mg/L), specific conductivity in microsiemens per centimeter ( $\mu\text{S}/\text{cm}$ ), and pH, multiple times per day. Water quality parameters within the ponds occasionally deviated from the threshold values suggested by Kesner et al. (2008) for native fishes; temperature  $< 33.3^\circ\text{C}$ , DO  $> 4.0\text{ mg/L}$ , and pH  $< 9.0$ ; however, no negative impacts to native fishes were documented during these periods. No threshold value was identified for specific conductivity, which ranged from a low of  $1,525\text{ }\mu\text{S}/\text{cm}$  in Pond 1 to a high of  $11,752\text{ }\mu\text{S}/\text{cm}$  in Pond 5. The remaining water quality parameters were observed to be similar between ponds throughout the monitoring period (figures 2–5).

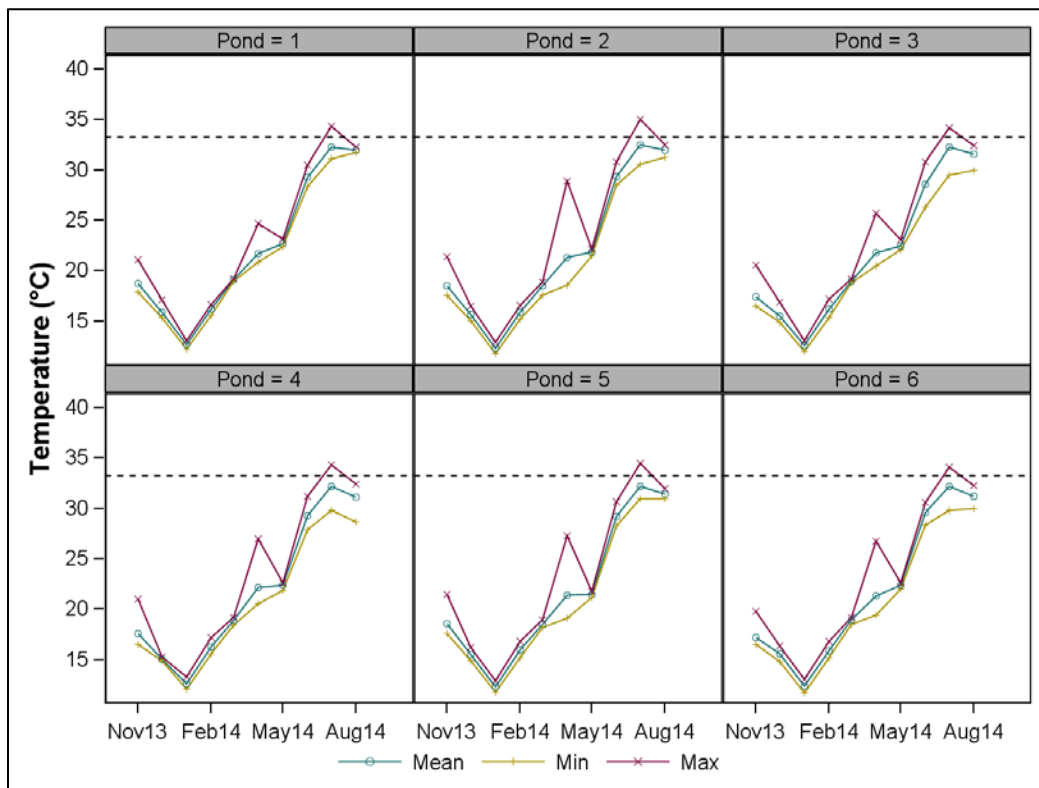
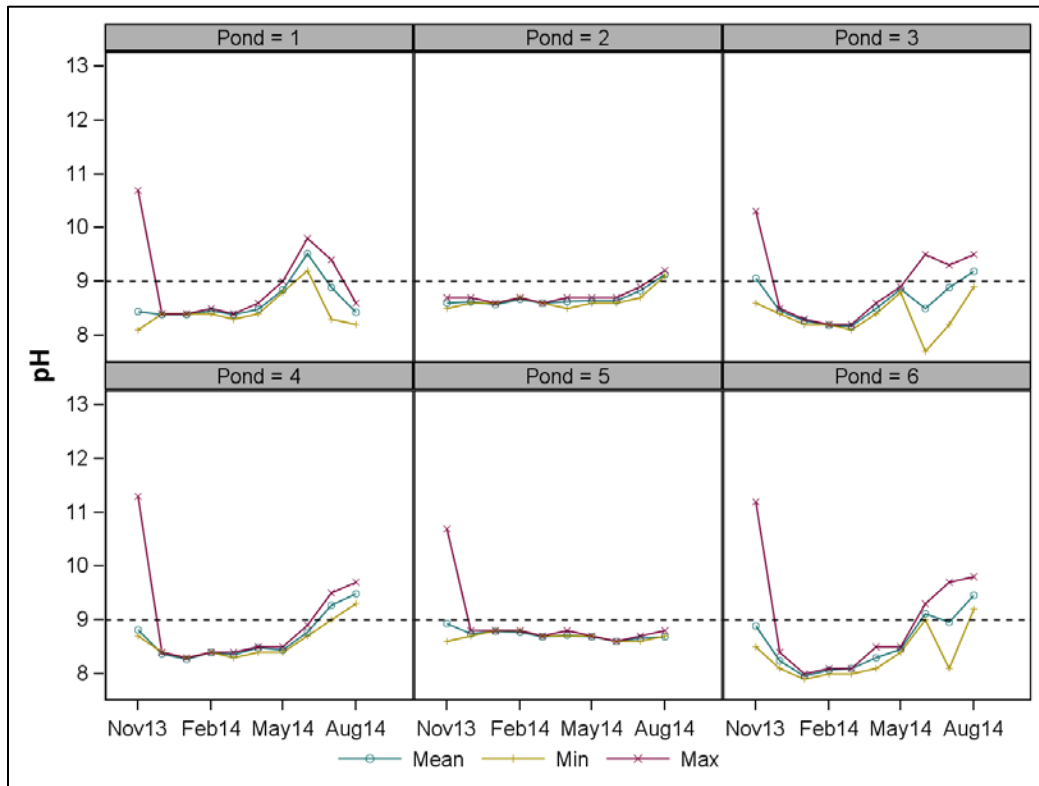
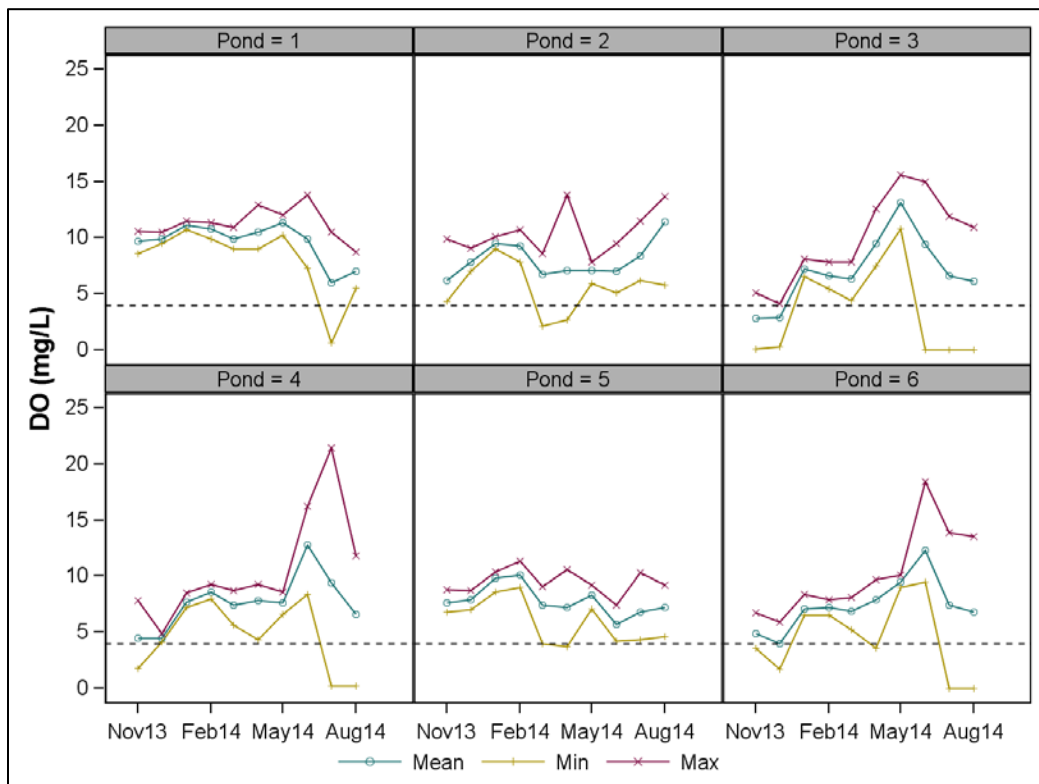


Figure 2.—Mean, minimum (Min), and maximum (Max) temperature.

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**Figure 3.—Mean, minimum (Min), and maximum (Max) pH.**



**Figure 4.—Mean, minimum (Min), and maximum (Max) DO.**

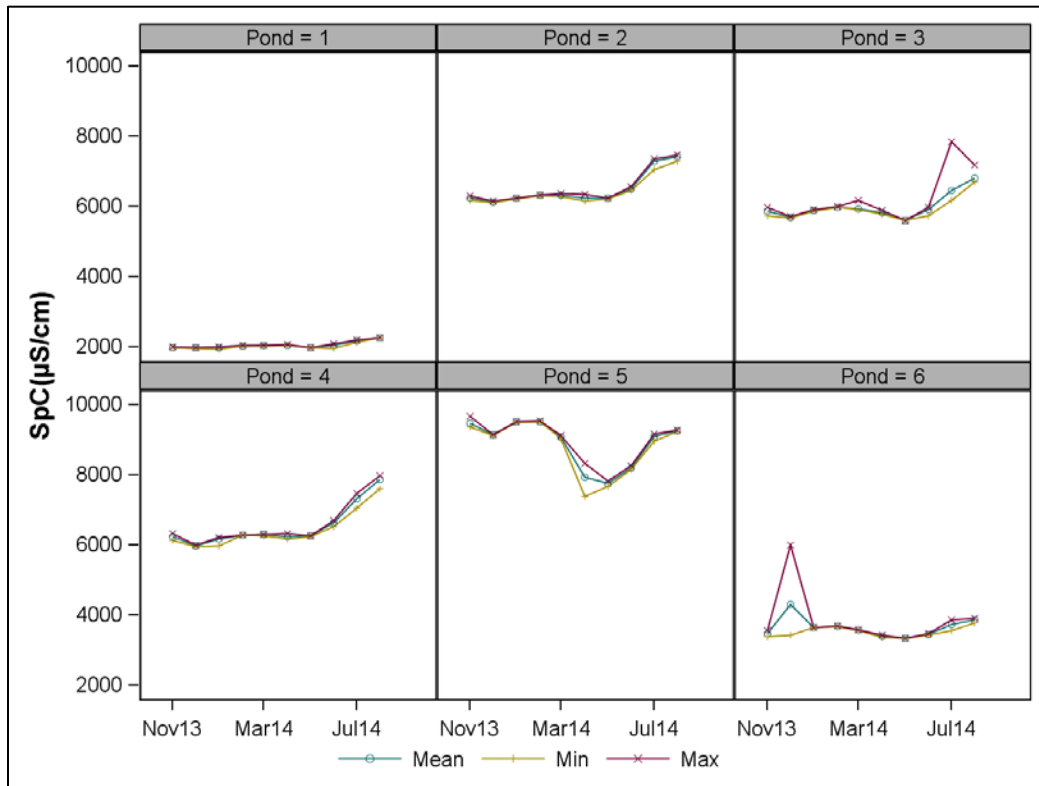


Figure 5.—Mean, minimum (Min), and maximum (Max) specific conductivity (SpC).

## 4.2 Avian Monitoring

For many years, the IPCA has been surveyed for various wildlife species. In 2013, the survey efforts were reduced and then further reduced in 2014. The riparian bird surveys will not be conducted again until the riparian areas are planted; sufficient data already exist on the pre-restoration bird communities. The marsh bird surveys were conducted at the ponds and Field 18 by the USFWS. No southwestern willow flycatcher surveys were conducted in 2014, as the area below Parker Dam on the lower Colorado River is now only surveyed once every 3 years. No breeding or resident southwestern willow flycatchers have ever been detected on the Imperial NWR. Surveys will be conducted in 2015. Once again, no small mammal surveys were conducted; Yuma hispid cotton rats (*Sigmodon hispidus eremicus*) have been captured at the IPCA in previous years. No bat monitoring was conducted in 2014. No yellow-billed cuckoo surveys were conducted in 2014. Once the riparian habitat has been planted, regular monitoring for all appropriate species will be conducted at the IPCA.

### 4.2.1 Marsh Bird Surveys

The Standardized North American Marsh Bird Monitoring Protocols report (Conway 2008) was used to conduct standardized surveys for marsh birds during



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the 2014 breeding season by various personnel of the Southwest Arizona Refuge Complex; the data were compiled by Joe Barnett, the Imperial National Wildlife Refuge biologist. Two survey points covered Field 18, and four points were used to survey the Imperial ponds (figures 6–9). Marsh birds were detected at Pond 5 and in the area of Field 18 (table 2).



**Figure 6.—Aerial view of Field 18.**

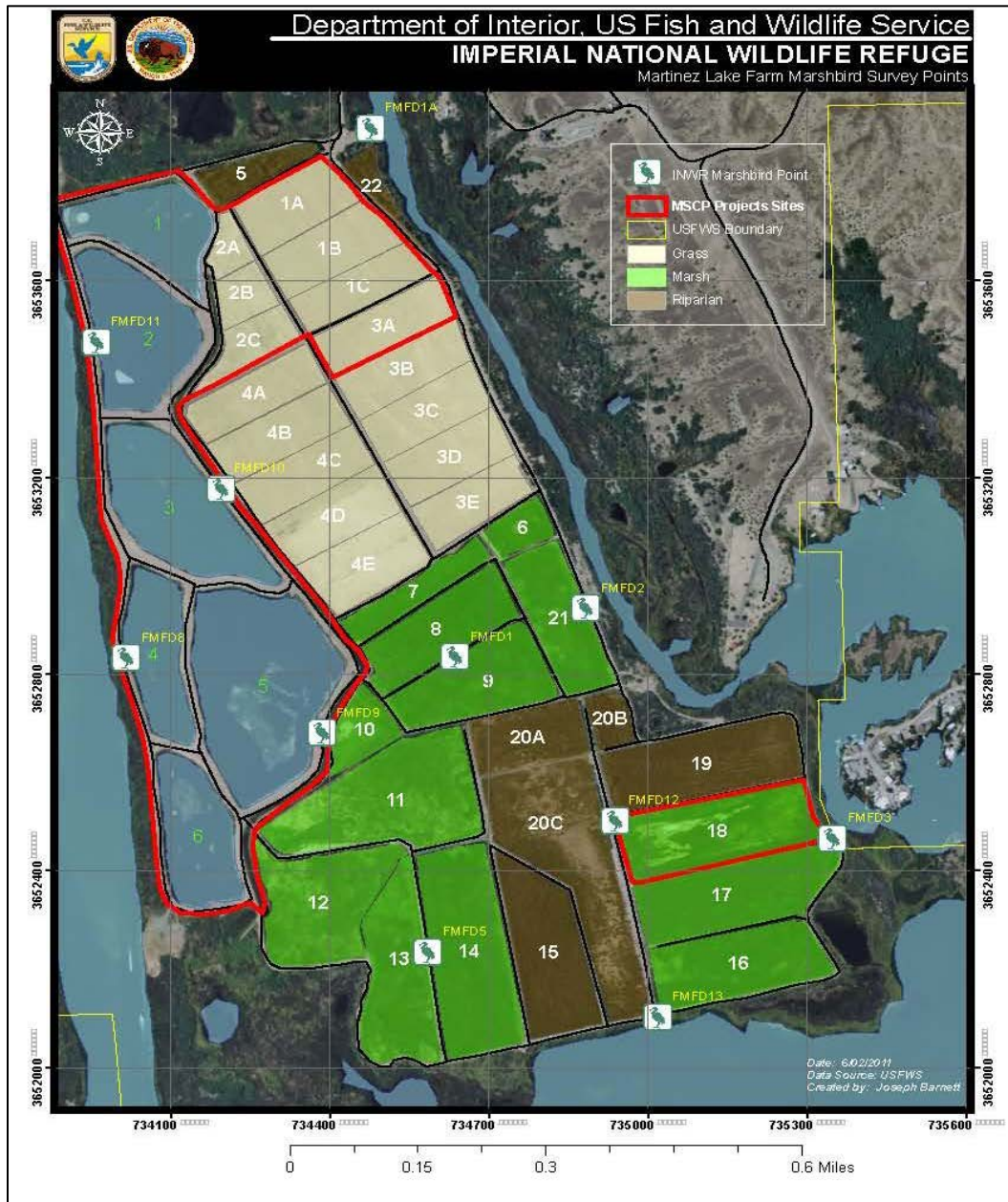


Figure 7.—Marsh bird survey points at the IPCA.





Figure 8.—Aerial view of Ponds 1, 2, and 3 at the IPCA.



Figure 9.—Aerial view of Ponds 4, 5, and 6 at the IPCA.

Table 2.—Marsh bird survey results for Field 18  
and Pond 5

Survey date	Field 18		Pond 5
	CLRA <sup>1</sup>	BLRA <sup>2</sup>	LEBI <sup>3</sup>
March 24	3	1	0
April 10	1	1	1
May 5	0	3	1

<sup>1</sup> CLRA = Yuma clapper rail.

<sup>2</sup> BLRA = California black rail.

<sup>3</sup> LEBI= Western least bittern.

In October 2014, aerial photos were taken of the entire IPCA, as shown on figures 8 and 9, with each pond labeled.

## **5.0 HABITAT CREATION CONSERVATION MEASURE ACCOMPLISHMENT**

### **5.1 Vegetation Monitoring**

Vegetation monitoring is not conducted for marshes; rather, remote sensing and ArcGIS techniques will be used to assist in the evaluation of the IPCA.

### **5.2 Evaluation of the Imperial Ponds Conservation Area**

The Final Habitat Creation Conservation Measure Accomplishment Tracking Process was finalized in October 2011 (LCR MSCP 2011). All areas within the IPCA were designed to benefit covered species at the landscape level.

The fish ponds will continue to be maintained consistent with the protocols employed during the water management study until a water delivery and management plan is developed. The water depths at Field 18 are managed during the breeding season for Yuma clapper rails, California black rails, and western least bitterns. Table 3 shows how much habitat is creditable for each of the targeted covered species at the IPCA. Three species with habitat creation goals have creditable acres at the IPCA. These species, including their corresponding conservation measure acronyms, are: Yuma clapper rail (CLRA1), California black rail (BLRA1), and western least bittern (LEBI1).

Table 3.—Species-specific habitat creation conservation measure creditable total acres for 2014

<b>Species-specific habitat creation conservation measure</b>	<b>BONY2</b>	<b>RASU2</b>	<b>CLRA1</b>	<b>BLRA1</b>	<b>LEBI1</b>
Creditable acres in 2014	0 <sup>1</sup>	0 <sup>1</sup>	0	0	0
Total, including previous years	<b>0</b>	<b>0</b>	<b>12</b>	<b>12</b>	<b>12</b>

<sup>1</sup> At this time, the Imperial ponds are not suitable for establishment and maintenance of healthy fishes. Reclamation has begun a 5-year study to determine the critical management actions required to maintain healthy fishes at the ponds.

## **6.0 ADAPTIVE MANAGEMENT**

Adaptive management relies on the initial receipt of new information, the analysis of that information, and the incorporation of the new information into the design and/or direction of future project work (LCR MSCP 2007). Under the Adaptive Management Program, conservation areas will be assessed for biological effectiveness and whether they fulfill the conservation measures outlined in the Habitat Conservation Plan for 26 covered species and if they potentially benefit 5 evaluation species. Post-development monitoring and species research results will be used to adaptively manage conservation areas after initial implementation. Once monitoring data are collected over a few years, and then analyzed for the IPCA, recommendations may be made through the adaptive management process for site improvements in the future.

There are no adaptive management recommendations for the IPCA at this time.

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- Conway, C.J. 2008. Standardized North American Marsh Bird Monitoring Protocols. Wildlife Research Report #2008-01. U.S. Geological Survey, Arizona Cooperative Fish and Wildlife Research Unit, Tucson, Arizona.
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